

FIG. 2

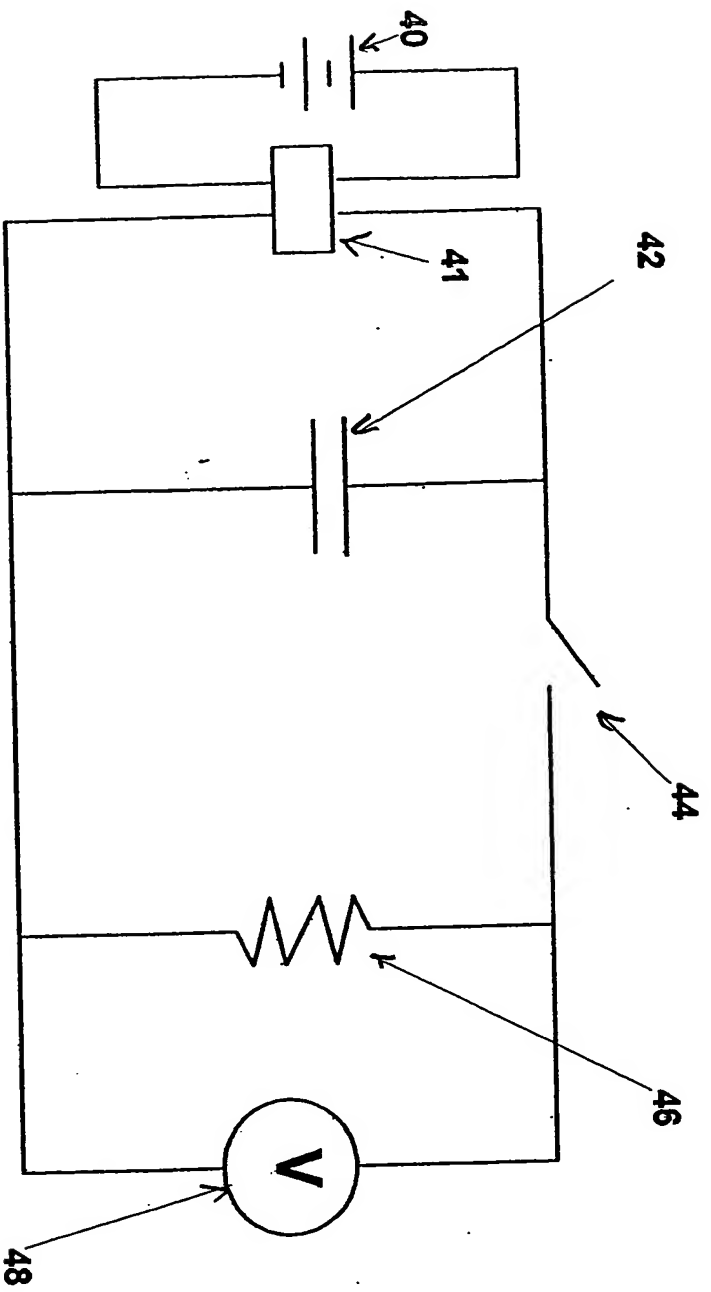


FIG. 3A

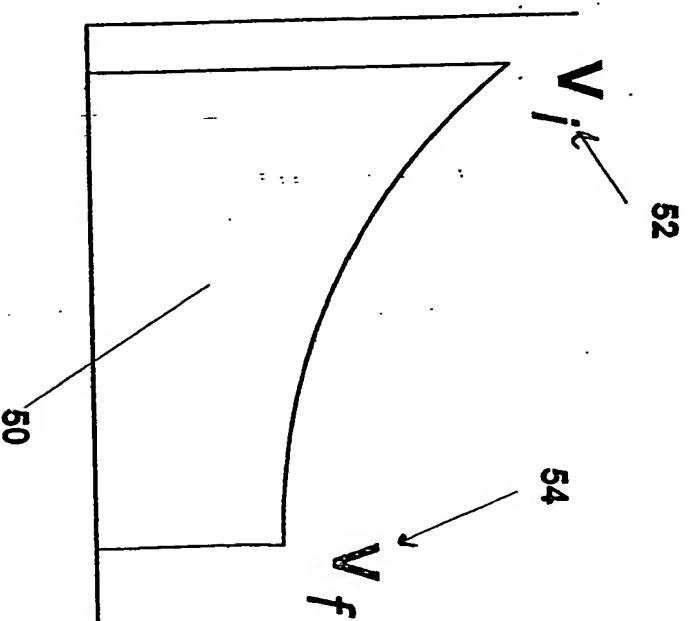


FIG. 3B

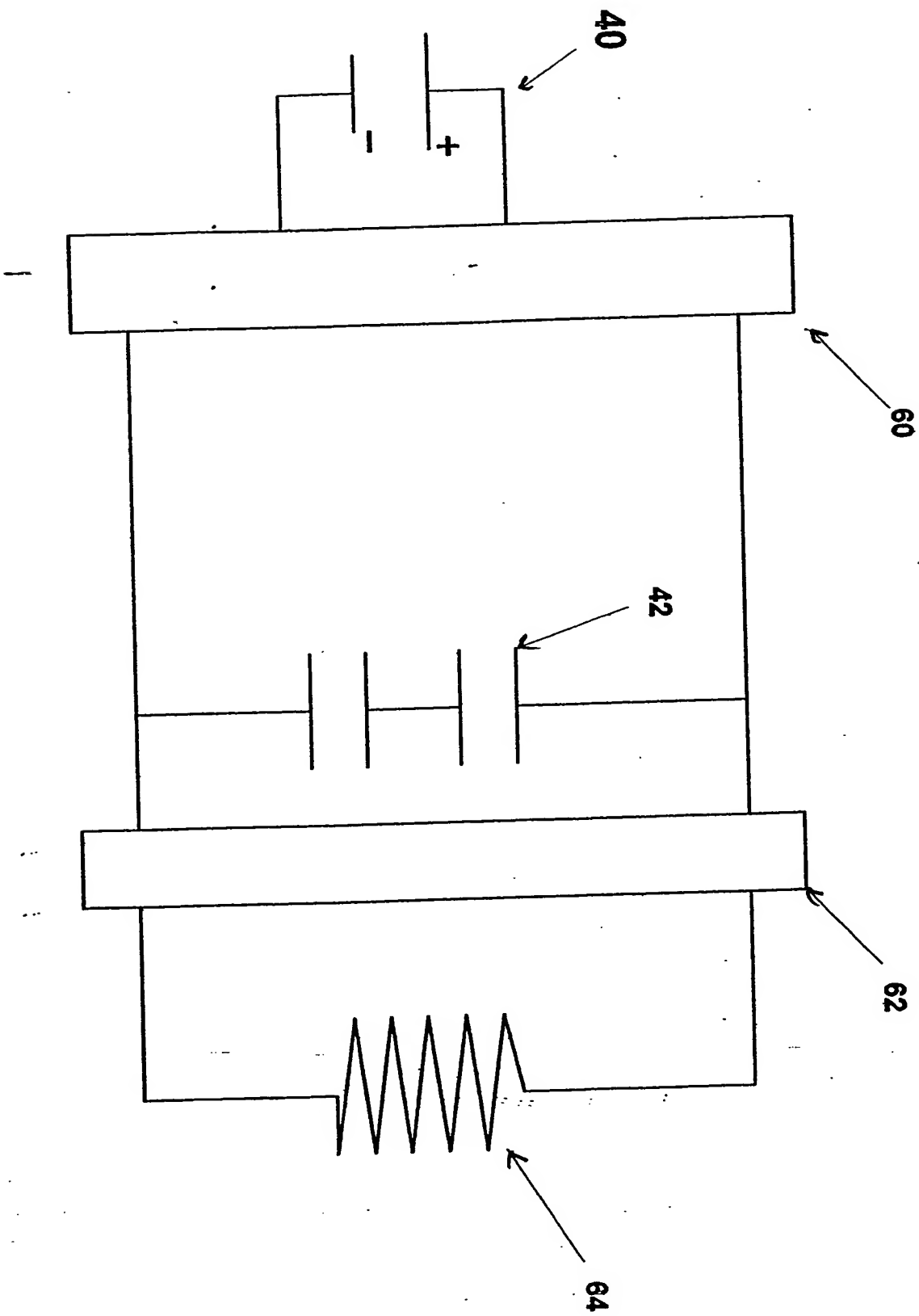


FIG. 4

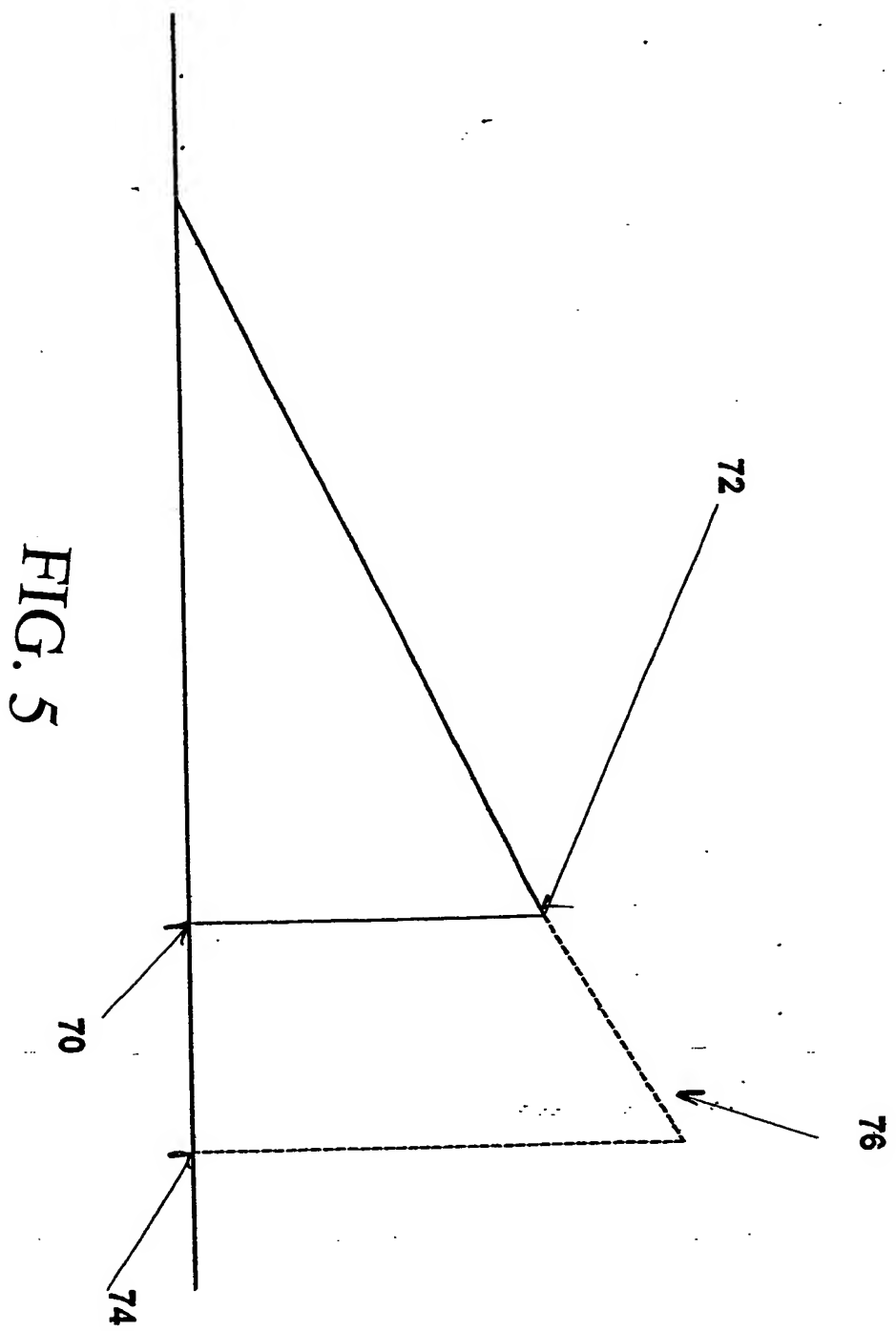


FIG. 5

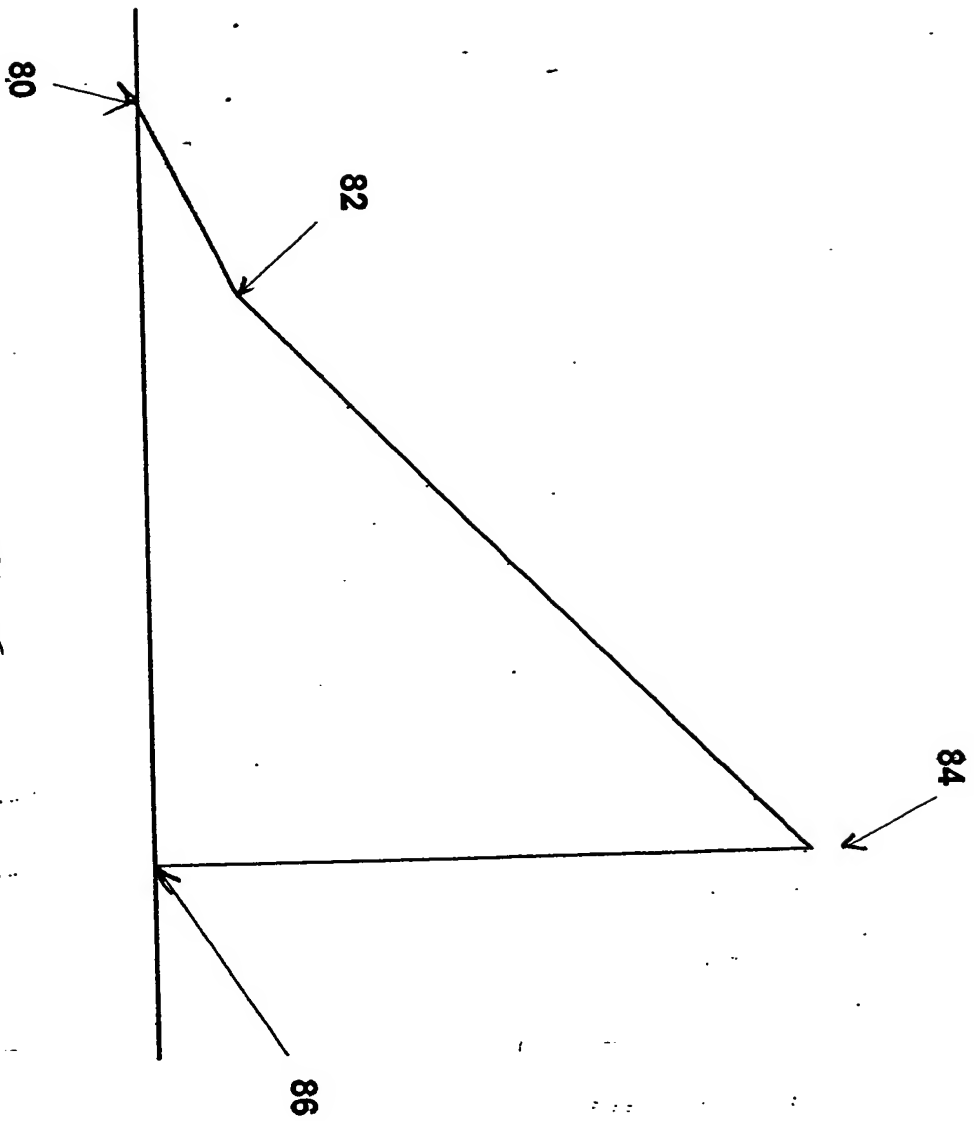


FIG. 6

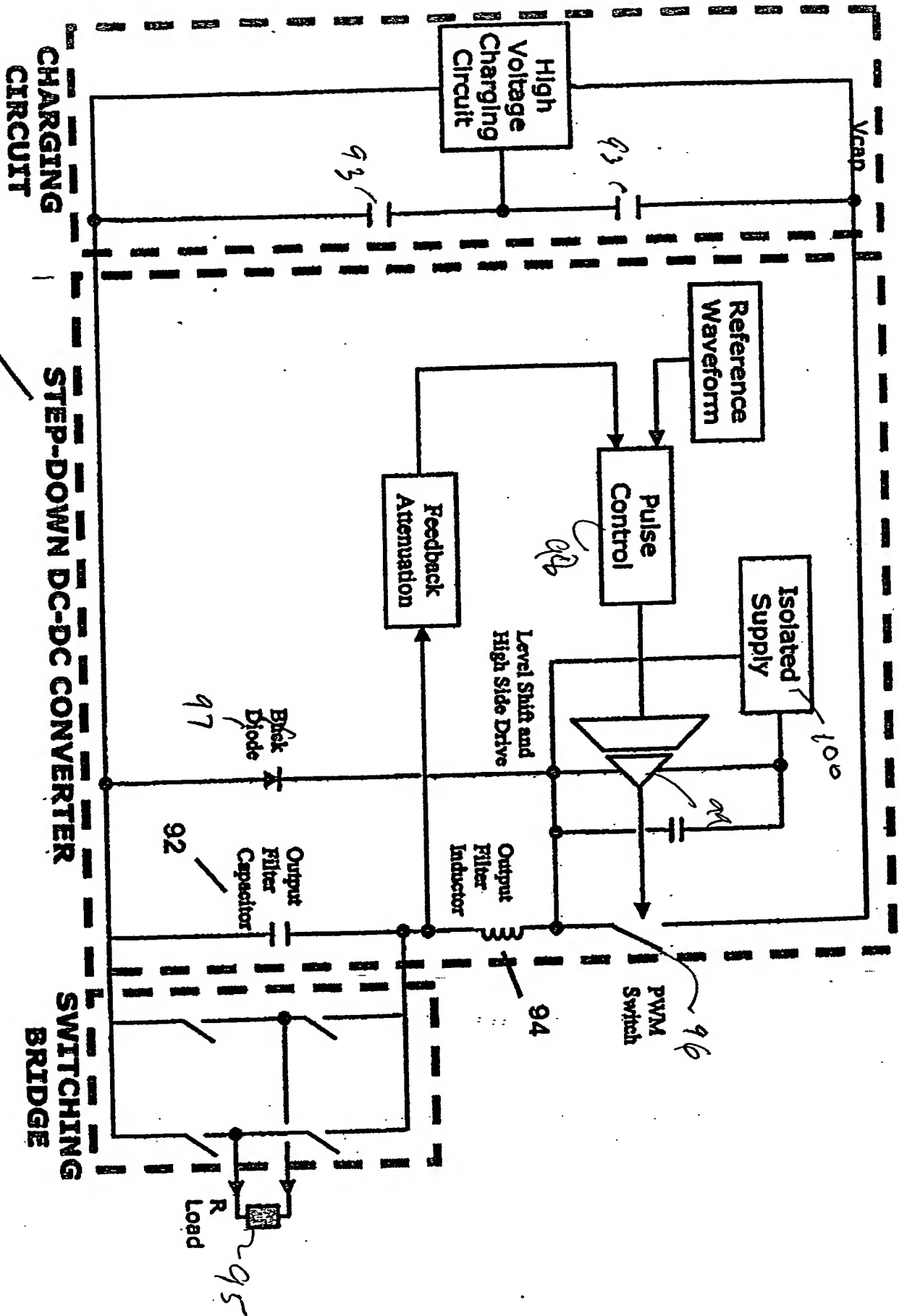


FIG. 7

**Example 1 (Single Toroid, Magnetics  
Core Selector Chart Method  $L = 14$   
 $\mu\text{H}$ )**

$L^2 = 12$  from selector chart choose 58350-A2  
58350-A2 perm.  $125\mu$   $A_L = 105$   $l = 5.88$   
cm

$$N = 1000 \cdot (0.014/105)^{0.5} = 11.5$$

$H = (0.4 \cdot P \cdot 11.5^2 \cdot 40) / 5.88 = 99$  (design  
manual table:  $\sim 33\%$  perm. at  $l_p$ )  
So inductance falls to  $0.33 \cdot 14\mu\text{H} = 4.6 \mu\text{H}$   
at 40 Amps

**Volume = 5.2 cc** (diameter = 24.6 mm,  
length = 10.9 mm)

**Example 2 (Single Toroid,  $L = 14 \mu\text{H}$ )**

58043-A2 perm.  $14\mu$   $A_L = 7$   $l = 2.38$  cm

$$N = 1000 \cdot (0.014/7)^{0.5} = 44.7$$

$H = (0.4 \cdot P \cdot 44.7^2 \cdot 40) / 2.38 = 944$  (design  
manual table:  $\sim 71\%$  perm at  $l_p$ )  
So inductance falls to  $0.71 \cdot 14\mu = 9.9 \mu\text{H}$  at  
40 Amps

**Volume = 0.59 cc** (diameter = 11.2 mm,  
length = 5.96 mm)

**Example 3 (2 stacked toroids,  $L = 14$   
 $\mu\text{H}$ )**

58273-A2 perm.  $14\mu$   $A_L = 12$   $l = 1.363$

$$N = 1000 \cdot (0.014/(2 \cdot 12))^{0.5} = 24$$

$H = (0.4 \cdot P \cdot 24^2 \cdot 30) / 1.363 = 884$  (design  
manual table:  $\sim 72\%$  perm. at  $l_p$ )  
So inductance falls to  $0.72 \cdot 14 \mu\text{H} = 10.0 \mu\text{H}$   
at 40 Amps

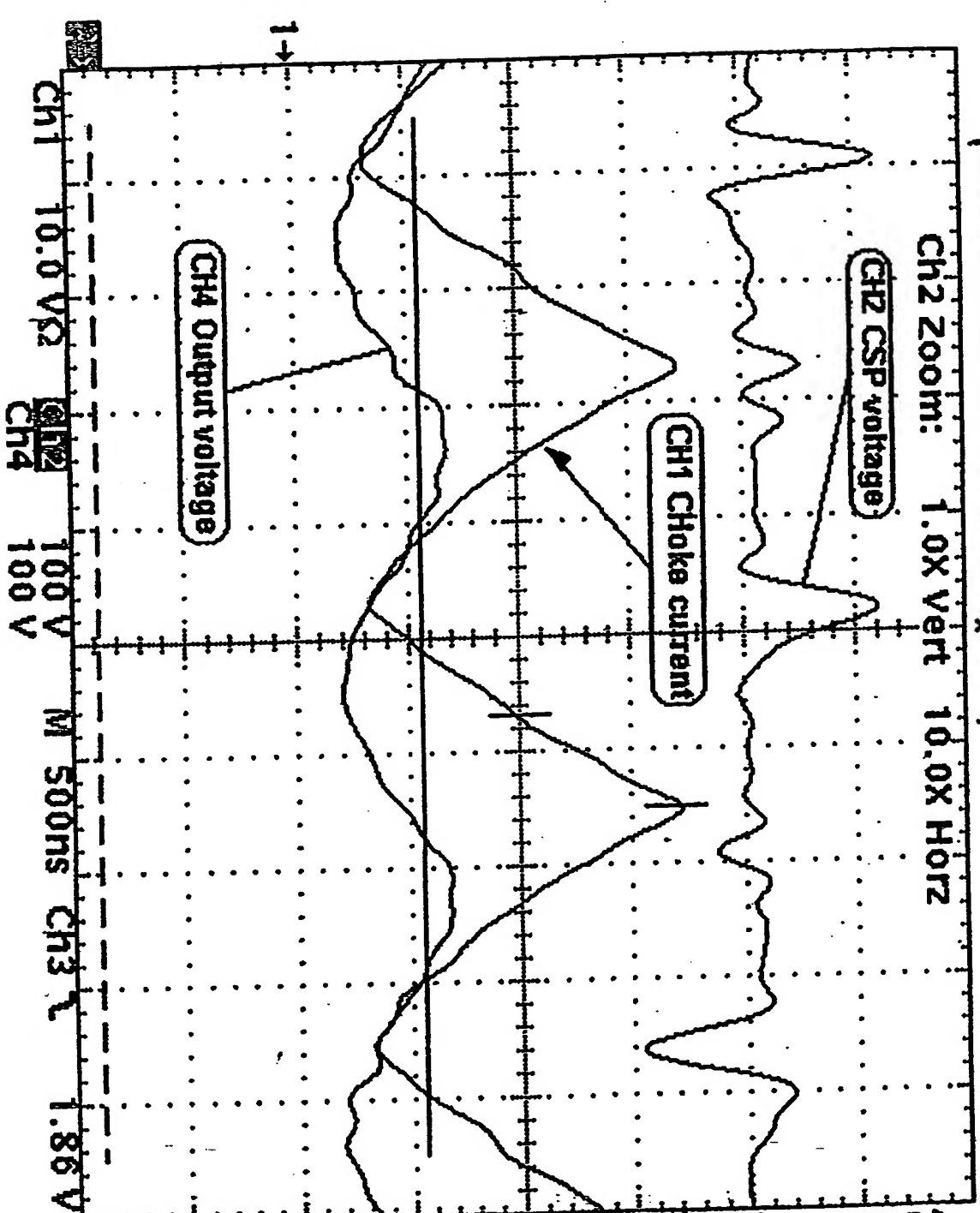
**Volume = 0.53 cc** (diameter = 7.6 mm,  
length = 11.7 mm)

**FIG. 8**



Tek Run: 10.0MS/s Sample **100%**

Ch2 Zoom: 1.0X Vert 10.0X Horiz



Δ: 2.8 V  
@: 288 V

C1 PK-PK  
37.6 V

- 15 ohm load,
- 1022 V CSP,
- 500KHz PWM,
- 40N140 PWM sw,
- 13.7uH 58273x2,
- R104gate=5 ohm,
- R9=100K,
- R10=2M-470pF,
- C111=0.1 uF,
- No Snubber,
- 249 ohm Opto Inp

FIG. 9

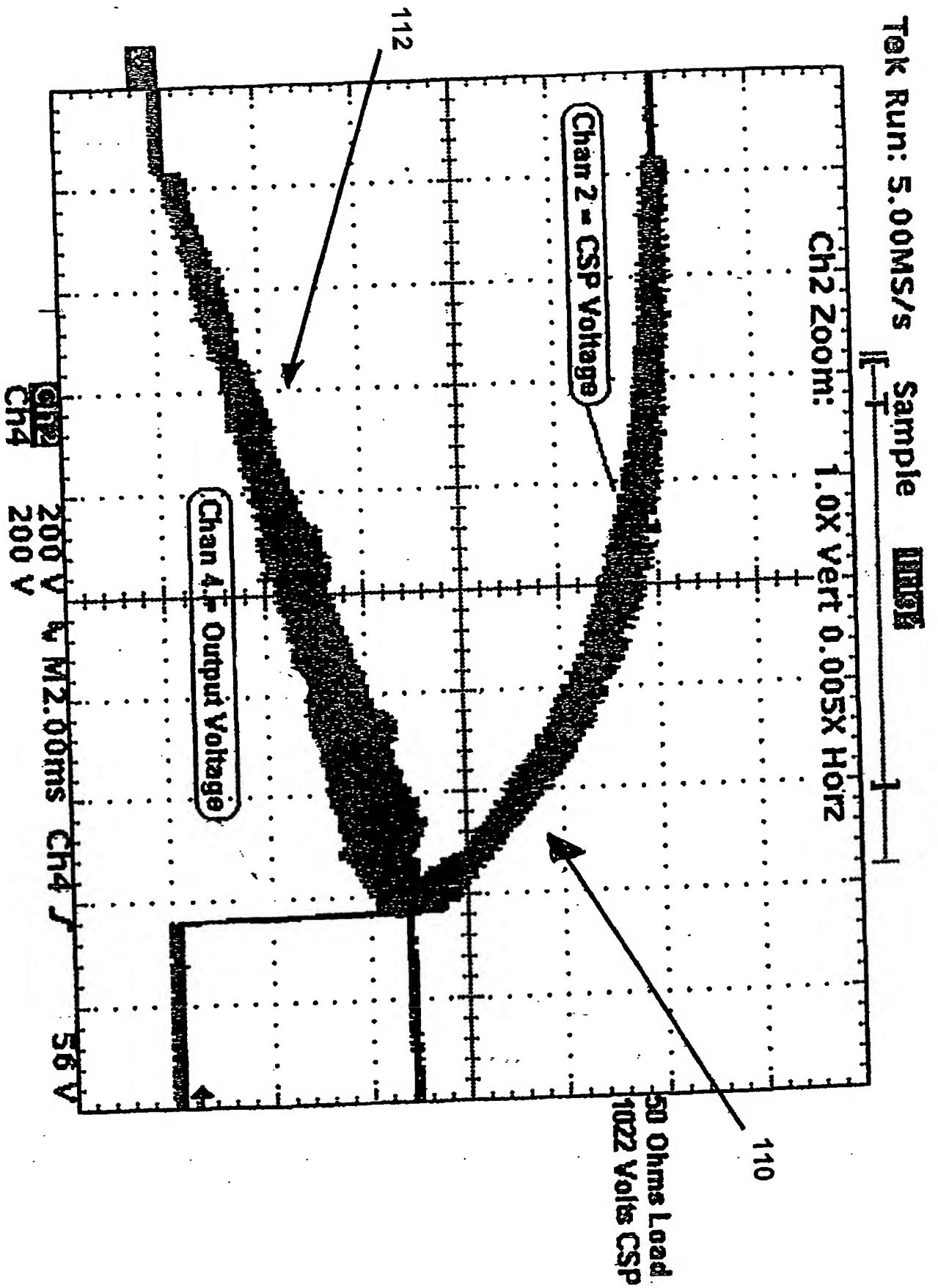


Figure 10

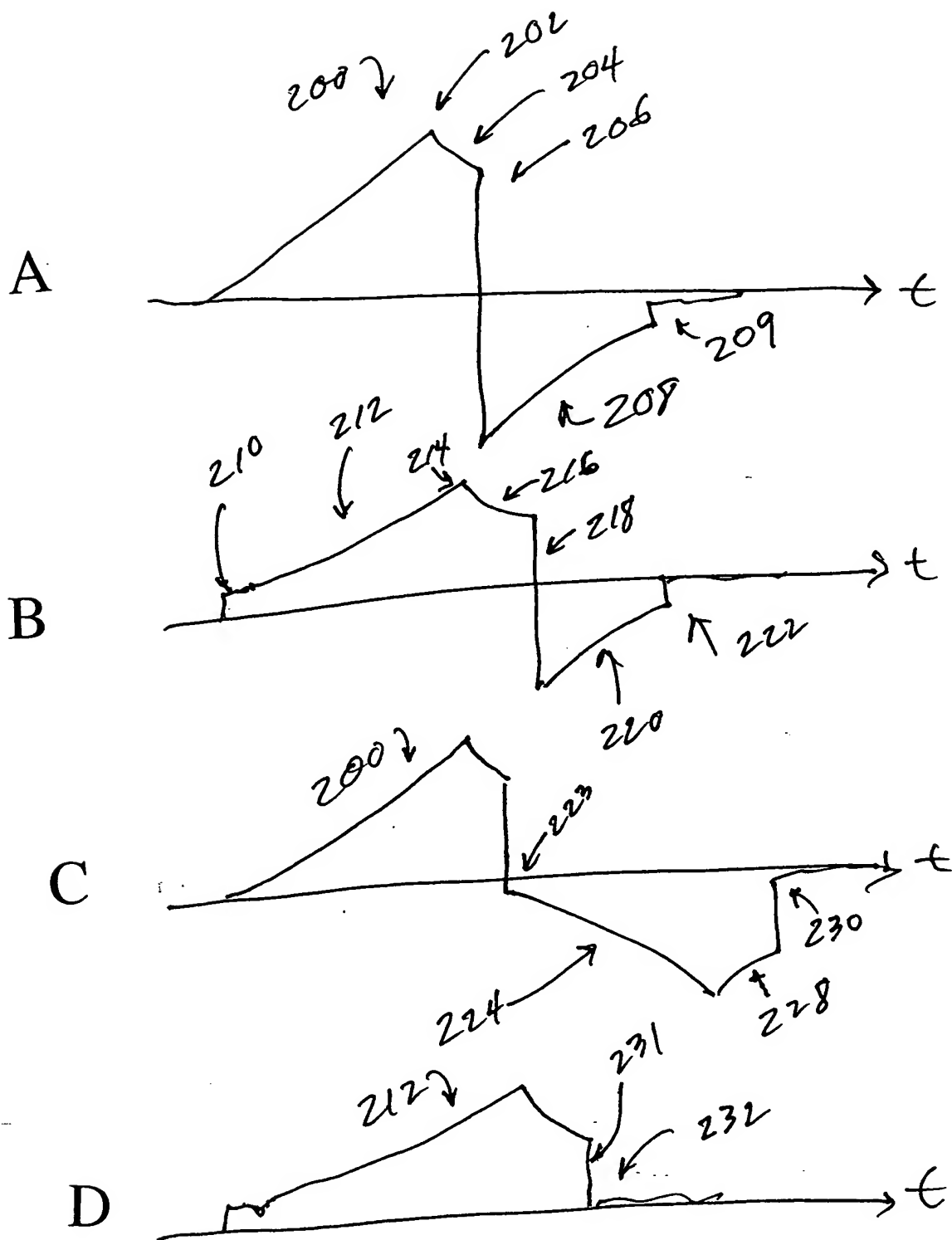


FIG. 11